

June 15, 2012

**VIA ECFS**

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

**Re: *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band, WT Docket No. 07-293; IB Docket No. 95-91; GEN Docket No. 90-357***  
**WRITTEN EX PARTE PRESENTATION – JOINT SUBMISSION WITH PROPOSALS THAT RESOLVE OPEN ISSUES ON RECONSIDERATION**

Dear Ms. Dortch:

AT&T Inc. (“AT&T”) and Sirius XM Radio Inc. (“Sirius XM”) have developed a package of compromise proposals to resolve open issues on reconsideration in the above-captioned docket. AT&T and Sirius XM jointly submit this package, described in detail below, for the Commission’s consideration.

For 15 years, both the Wireless Communications Service (“WCS”) and the Satellite Digital Audio Radio Service (“SDARS”), which share the 2.3 GHz band, have been burdened with technical limitations and regulatory uncertainty.<sup>1</sup> The WCS band has been significantly underutilized since the Commission allocated the spectrum, due to the technical limitations imposed on WCS licensees to protect adjacent band operations and the prolonged efforts to relax those limitations to allow more robust WCS use while protecting SDARS service.<sup>2</sup> While the development of SDARS has not been as constrained by technical rules, the SDARS licensees, now combined as Sirius XM, have endured years of uncertainty building and operating a terrestrial network under Special Temporary Authority, plus the significant uncertainty that the

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<sup>1</sup> The historical background of the FCC’s efforts to draft technical rules that would permit mobile broadband services to be deployed in the 2.3 GHz WCS band is set forth in detail in the FCC’s 2010 Report & Order. *Amendment of Part 27 of the Comm’n’s Rules to Govern the Operation of Wireless Commc’ns Servs. in the 2.3 GHz Band; et al.*, Report and Order and Second Report and Order, 25 FCC Rcd. 11710, 11714-23 ¶¶ 5-27 (2010) (“*Report & Order*”).

<sup>2</sup> *Id.* at 11714 ¶ 5 (noting that the WCS Band lacks “a permanent regulatory framework” – largely due to the “difficulty of resolving potential interference among the proposed operations of SDARS and WCS licensees in a manner that will permit the two services to co-exist”).

Commission might liberalize the rules governing WCS in a way that would threaten the ability of the over 22 million SDARS customers to receive a high-quality, high-availability service. When the Commission promulgated revised rules two years ago in the *Report & Order*, it believed it had developed a compromise that would satisfy all sides, enabling WCS licensees to deploy mobile broadband services while protecting SDARS customers from harmful interference.<sup>3</sup> Instead, Sirius XM remained concerned that WCS operations would cause interference to users of its service, which operates on spectrum adjacent to the WCS band. And AT&T and the WCS Coalition believe that the current rules effectively preclude the use of Long Term Evolution (“LTE”) technology in the WCS band, thereby limiting the potential to use the spectrum for mobile broadband. Both AT&T and Sirius XM filed petitions for partial reconsideration of the WCS technical rules, which are pending before the Commission.<sup>4</sup>

In order to resolve these issues, AT&T and Sirius XM met to discuss whether their differences could be bridged and have reached an accommodation with significant concessions on both sides. This accommodation, if accepted in its entirety, will enable the adoption of technical rules satisfactory to both interests and should allow licensees in the 2.3 GHz WCS band to exploit the most efficient new mobile broadband standards, including LTE, while limiting the potential interference to satellite radio reception to acceptable levels. The need to facilitate wireless broadband operations in this band, coupled with the unique technical challenges of allowing broadband usage adjacent to a satellite allocation, justify enacting rules with more specific obligations and greater regulatory oversight than the Commission requires in other contexts.

Adopting the parties’ proposed changes to the WCS technical rules is clearly in the public interest. It will permit deployment of innovative mobile broadband services in the WCS band and will help to achieve the Commission’s goal of making additional spectrum available for mobile broadband service.<sup>5</sup> At the same time, it will ensure SDARS customers continue receiving desired programming while removing the uncertainty Sirius XM has faced concerning the future technical rules under which it must operate.

### **PROPOSED CHANGES TO THE WCS TECHNICAL RULES**

AT&T and Sirius XM jointly urge the Commission to adopt, *in toto*, the following recommendations to modify the WCS technical rules:<sup>6</sup>

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<sup>3</sup> *Id.* at 11712 ¶ 2.

<sup>4</sup> The WCS Coalition, of which AT&T is a member, also filed a petition for partial reconsideration, as did Green Flag Wireless, LLC, AARL, the National Association for Amateur Radio, and Stratos Offshore Services Company.

<sup>5</sup> See Federal Communications Commission, *Connecting America: The National Broadband Plan* at 85-86 (2010), available at <http://download.broadband.gov/plan/national-broadband-plan.pdf>.

<sup>6</sup> A proposed revision to the rules to implement these changes is appended hereto.

## **1. Prohibit Mobile and Portable Transmitters in the WCS C and D Blocks**

The C and D Blocks are immediately adjacent to the satellite radio downlink bands and, therefore, hold the most potential for harmful interference to satellite radio consumers. This potential is particularly acute for mobile and portable transmitters because Sirius XM cannot design its facilities to account for their non-fixed locations or otherwise resolve the problem through coordination. With no separation between the WCS mobile transmit band and the satellite radio receive band, Sirius XM has significant concerns that filtering is not a practical solution for mitigating the impact of overload interference to satellite receivers. AT&T believes these concerns can be accommodated. The WCS Coalition's tests showed negligible harmful interference from operations in the WCS A and B Blocks while testing by both Sirius XM and the WCS Coalition has shown that mobile transmitters in the C or D Blocks can mute satellite radio receivers even at significant separation distances.<sup>7</sup> To reduce this potential for interference, both Sirius XM and AT&T agree that the C and D Blocks should not be used for mobile and portable broadband transmissions. This will, in effect, provide a 5 MHz guard band from mobile and portable transmissions at each end of the SDARS band while permitting the spectrum to be used for fixed services or base stations under rules that protect SDARS receivers.<sup>8</sup>

## **2. Exclude Mobile and Portable Stations in the A and B Blocks Using Appropriate Uplink Protocols from the 50 mW/MHz Power Spectral Density Limit**

Sirius XM has stated that overload is a significant potential source of interference to satellite radio reception, and that its negative impact increases in direct relation to the amount of interfering signal power transmitted in close proximity to satellite radio spectrum. Limiting the power spectral density of mobile stations to 50 mW/MHz, Sirius XM has stated, would protect satellite radio receivers from concentrated WCS signal power near the SDARS band edge.

Testing by Sirius XM and the WCS Coalition has shown that excluding mobile and portable transmitters from the C and D Blocks will significantly reduce, but not eliminate, the potential for overload to satellite radio service. It also has been shown by the WCS Coalition that air interfaces using Single Carrier FDMA and Proportionally Fair Scheduling significantly reduce the occurrences of concentrated power in any part of the operating bandwidth. With the exclusion of mobile and portable transmitters from the C and D Blocks and the use of appropriate air interfaces, Sirius XM believes a 50 mW/MHz power spectral density limit is not necessary to prevent harmful overload interference. Accordingly, AT&T and Sirius XM agree that technologies that employ an uplink protocol which avoids concentrating energy at the edge

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<sup>7</sup> *Report & Order*, 25 FCC Rcd. at 11730-36, 11739-40 ¶¶ 44-58, 64-66.

<sup>8</sup> Prohibiting mobile and portable operations in the WCS C and D Blocks leaves these Blocks available for many necessary broadband-related uses such as wireless backhaul and other fixed operations. In addition, innovative broadband uses such as that proposed by GoGo, Inc. (see, e.g. ex parte filing of GoGo, Inc. (filed Jan. 13, 2012)) would be consistent with the current proposal. AT&T and Sirius XM urge the Commission to adopt the further rule changes that GoGo has proposed for the C and D Blocks.

of the operating band (e.g., LTE which uses Single Carrier FDMA with Proportionally Fair Scheduling) should be excluded from the power spectral density limit of 50 mW/MHz while retaining the maximum power level for portable and mobile devices at 250 mW EIRP.<sup>9</sup>

### **3. Exclude Mobile, Portable, and Fixed CPE Stations Using Frequency Division Duplex (“FDD”) Technology from All Uplink Duty Cycle Limits**

In the 2010 *Report and Order*, the FCC imposed a new 25 percent mobile transmission duty cycle limit<sup>10</sup> on technologies that employ FDD. As AT&T noted in its Petition for Partial Reconsideration, the Commission did not explain why this limit was necessary, and Sirius XM did not request it. Presumably, the Commission adopted the requirement because the record shows that the Automatic Gain Control (“AGC”) circuitry in SDARS receivers can be disrupted by certain intermittent transmissions in adjacent bands. However, FDD transmissions have a minimal impact because they involve no intermittent on-off pulsing and, therefore, have no mechanism to interfere with the AGC circuitry in SDARS receivers. Because the effect of FDD devices on the AGC circuitry of Sirius XM receivers is predictable, low, and manageable, AT&T and Sirius XM agree that the duty cycle limits for FDD mobile, portable, and fixed CPE transmissions should be eliminated.

Sirius XM believes that satellite radio operations can better coexist with WCS usage of FDD technology rather than TDD. AT&T has significant experience in deploying FDD, which is becoming a critical technology in the development of mobile broadband.<sup>11</sup> Accordingly, abandoning the FDD duty cycle limit will serve the public interest by maximizing the performance of the mobile broadband system while also maximizing the protection of Sirius XM customers against AGC disruption.

### **4. Permit FDD Base Station Operations in the Lower WCS Blocks**

As the Commission repeatedly has stated, spectrum is a limited and extremely valuable resource.<sup>12</sup> For mobile broadband to flourish, the public interest requires that the Commission

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<sup>9</sup> AT&T and Sirius XM also agree that the WCS rules should continue to require automatic transmitter power control.

<sup>10</sup> 12.5 percent, for the 2.5 MHz of Blocks C and D immediately adjacent to the SDARS band.

<sup>11</sup> Clearwire appears to be unique in the United States in deploying TD-LTE for mobile services. See Press Release, Clearwire, China Mobile and Clearwire Announce Agreement on TD-LTE Device Test Specifications and Joint Interoperability Testing Plan (Jan. 17, 2012), available at <http://corporate.clearwire.com/releasedetail.cfm?ReleaseID=639617>.

<sup>12</sup> See, e.g., *Serv. Rules for the 698-746, 747-762, & 777-792 MHz Bands; et al.*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 26 FCC Rcd. 733, 750 ¶ 59 (2011) (“Spectrum is a valuable public resource and the Commission is committed to ensuring that this resource is used efficiently.”); Federal Communications Commission, Omnibus Broadband Initiative, OBI Technical Paper Series 6, *Mobile Broadband: The Benefits of*

not constrain the manner in which a licensee's spectrum is used, except where necessary to avoid harmful interference to other services.<sup>13</sup> The requirement that WCS licensees deploy their base stations only in the upper WCS Blocks fails this test.<sup>14</sup> The Commission imposed this requirement to accommodate Sirius XM's interference concerns and AFTRCC's request that mobile stations not be allowed in the upper WCS bands. The limitation on base stations, contrary to its intent, does not protect either interest since (i) base stations employing TDD are authorized to operate in both the upper and lower Blocks; and (ii) interference concerns with base stations will be minimized through the proposed ground power limit and the definition of "harmful interference" proposed herein. Any remaining concerns can be resolved on a case-by-case basis through coordination agreements between WCS licensees and Sirius XM, without the wholesale prohibition of base stations from the lower Blocks, to allow support of asymmetrical data bandwidth allocation.

Interference concerns with base station operation in bands adjacent to WCS can be mitigated through proper coordination procedures, and the rules provide for such coordination.<sup>15</sup> Accordingly, both Sirius XM and AT&T propose that FDD base station operations in the lower WCS Blocks be permitted while retaining the proscription against FDD mobile and portable devices from operating in the upper portions of the A and B Blocks.

#### **5. No Ground-Level Power Flux Density Limit Is Required for Base Stations Using FDD Technology; Instead, a Ground Power Limit Should Be Adopted**

Since its 2006 Petition for Rulemaking, Sirius XM has proposed establishing ground-level power flux density limits for satellite terrestrial repeaters and WCS base stations to protect each service's receivers against overload interference from the high signal levels produced around base station transmitters. The Commission concluded in the *Report & Order* that the out-of-band emissions ("OOBE") limits it adopted provide adequate protection of SDARS receivers

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*Additional Spectrum* at 6 (Oct. 2010) ("[I]t is likely that spectrum will become an increasingly scarce resource in the near term, and that freeing spectrum for mobile broadband use over the next five years will entail significant economic benefits.").

<sup>13</sup> See, e.g., *Serv. Rules for the 698-746, 747-762, & 777-792 MHz Bands; et al.*, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd. 8064, 8124 ¶ 157 (2007) ("Among our key public interest objectives is to ensure that spectrum is put to its most efficient and effective use, and the Commission has increasingly granted technical and operational flexibility to its licensees to enable them to achieve that goal when it is consistent with preventing unacceptable interference."); *Amendment of the Comm'n's Rules Regarding the 37.0-38.6 GHz & 38.6-40.0 GHz Bands; et al.*, Third Notice of Proposed Rulemaking, 19 FCC Rcd. 8232, 8243 ¶ 26 (2004) (stating that a "flexible [regulatory] framework is consistent with continued Commission efforts to move toward innovative approaches to spectrum policy that are designed to maximize the public interest benefits derived from the use of radio spectrum").

<sup>14</sup> AT&T accepts that reasonable concerns may justify excluding WCS mobile and portable transmitters from the upper WCS Blocks.

<sup>15</sup> See 47 C.F.R. §§ 25.263, 27.72.

from WCS base stations. For this reason, coupled with its concerns about the administrative practicability of complying with and enforcing a power flux density limit, the Commission declined to adopt Sirius XM's proposal.<sup>16</sup> Nevertheless, Sirius XM continued to press for the Commission to adopt a power flux density limit on reconsideration.<sup>17</sup>

Testing in conjunction with the other protections being afforded, however, has persuaded Sirius XM that a power flux density limit for WCS is unnecessary, provided that the rules define circumstances of harmful interference that will require coordination between WCS and SDARS licensees to mitigate. Instead of Sirius XM's power flux density request, AT&T and Sirius XM agree that there should be a maximum design ground power level target of -44 dBm for base and fixed transmitters operating in the WCS A or B Blocks and -55dBm for base and fixed transmitters operating in the C or D Blocks. As discussed in more detail below, the revised rules should require WCS operators to work cooperatively with SDARS operators to address areas where such power levels are exceeded and harmful interference occurs.

**6. Permit Use of Outdoor Antennas in Certain Circumstances By Fixed Customer Premises Equipment ("CPE") Stations Operating with 2 Watts per 5 MHz or Less Average EIRP and the Stepped Emission Mask**

The *Report & Order's* prohibition on outdoor antennas for fixed CPE stations operating with 2 Watts per 5 MHz or less average EIRP and using the stepped emission mask threatens the viability of fixed applications.<sup>18</sup> WCS licensees have been serving fixed wireless customers with outdoor antennas that meet the older, more stringent OOB limit for a number of years. The Commission has acknowledged that these installations are not causing interference to SDARS subscribers.<sup>19</sup> Nevertheless, Sirius XM remains concerned that increased OOB levels from fixed CPE with outdoor antennas and the new stepped mask could have the potential for harmful interference in urban and suburban areas. To alleviate this concern, both AT&T and Sirius XM propose that fixed CPE stations operating at 2 Watts per 5 MHz or less average EIRP using the stepped emission mask be permitted to operate with professionally installed outdoor antennas in locations removed by 20 meters from roadways or in locations where it can be shown that the ground power level of -44 dBm in the A or B Blocks or of -55dBm in the C or D Blocks will not be exceeded at the nearest road location.

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<sup>16</sup> *Report & Order*, 25 FCC Rcd. at 11766 ¶ 136.

<sup>17</sup> Sirius XM Radio Inc. Opposition to Petitions for Reconsideration of the WCS Coalition and AT&T Inc. at 15 (filed Oct. 18, 2010).

<sup>18</sup> Petition of the WCS Coalition for Partial Reconsideration at 8-12 (filed Sept. 1, 2010). Sirius XM believes "fixed broadband services could be an excellent use for the WCS spectrum, provided sufficient safeguards are in place." Sirius XM Radio Inc. Reply to Oppositions of the WCS Coalition and AT&T Inc. at 6 (filed Nov. 2, 2010).

<sup>19</sup> *Report & Order*, 25 FCC Rcd. at 11768 ¶ 141.

## **7. Coordination Requirements**

An effective coordination process between Sirius XM and WCS licensees is an essential aspect of this proposal. AT&T and Sirius XM have executed a coordination agreement, provided as Attachment A hereto, that is intended to accomplish this purpose. To the extent the provisions of that coordination agreement conflict with the requirements in Section 27.72 of the rules, the procedures established under the agreement supersede the requirements in that rule. The Commission should require other WCS licensees to enter into a similar coordination agreement with Sirius XM.

## **8. Definition of Harmful Interference to SDARS Operation**

The following conditions will be presumed to constitute harmful interference to Sirius XM operation and require coordinated efforts to examine and resolve the issues pursuant to the protocol discussed above:

In a location where a WCS signal level is present on a roadway at a level greater than -44 dBm in the A or B Blocks, or -55 dBm in the C or D Blocks, and a test demonstrates that the SDARS customer would be muted over a road distance of greater than 50 meters<sup>20</sup>; or

For a mutually agreeable drive test route, if the ground signal level on roadways exceeds -44 dBm in the A or B Blocks, or -55 dBm in the C or D Blocks, for more than one percent of the cumulative surface road distance on that drive route, and a test demonstrates that the SDARS customer would be muted over a cumulative road distance of greater than one half of one percent (incremental to any muting present prior to use of WCS frequencies in the area of that drive test).<sup>21</sup>

## **9. Revise the WCS Build-Out Requirements**

AT&T is separately submitting a proposal to extend the build-out deadlines to permit the deployment of FDD LTE equipment. Sirius XM will support that proposal upon adoption of the package of rules proposed herein, since it will promote the development of mobile broadband in the WCS band in a manner least likely to cause harmful interference to SDARS receivers.

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<sup>20</sup> AT&T and Sirius XM agree to immediately start work on developing an appropriate, mutually-acceptable test protocol.

<sup>21</sup> AT&T and Sirius XM agree to immediately start work on developing an appropriate, mutually-acceptable test protocol.

### **CONCLUSION**

After fifteen years, the Commission is now on the cusp of releasing the potential of WCS spectrum and it can do so while protecting the quality of service currently provided to tens of millions of SDARS subscribers. The compromise package that AT&T and Sirius XM have developed will advance the FCC's goal of making mobile broadband services over WCS widely available to help address the capacity crunch that puts "U.S. competitiveness and future opportunities at risk."<sup>22</sup> At the same time, this package will not pose an unacceptable interference threat to satellite radio reception. The WCS licensees will not get quite as much flexibility as they had hoped, and SDARS operations may not be quite as immune from interference as Sirius XM had wanted. However, both AT&T and Sirius XM are confident that they have developed a set of technical rules that, if adopted in total, will allow each service to flourish while ending the uncertainty that has plagued both for far too long. Accordingly, it is in the public interest for the Commission to adopt all of these proposed changes.

Respectfully submitted,

/s/ Joan Marsh

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Kristin S. Rinne  
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/s/James Blitz

James S. Blitz  
Vice President, Regulatory Counsel  
Sirius XM Radio Inc.  
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Washington, DC 20002

Terrence R. Smith  
Corporate Vice President and  
Chief Engineering Officer  
Sirius XM Radio Inc.  
1221 Avenue of the Americas  
New York, NY 10020

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<sup>22</sup> Julius Genachowski, Chairman, Federal Communications Commission, Prepared Remarks to International CTIA Wireless 2012 (May 8, 2012).

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#### Attachments

cc: Rick Kaplan  
Julius Knapp  
Ruth Milkman  
Tom Peters  
Ron Repasi  
Patrick Forster  
Roger Noel  
John Leibovitz  
Tom Derenge

## **ATTACHMENT A**

Coordination Agreement and Interference Resolution Between Sirius XM and AT&T

1. Pursuant to this agreement, AT&T Services, Inc. (together with its affiliates, "AT&T") and Sirius XM Radio Inc. ("Sirius XM") will implement the following procedures to mitigate any potential interference and actual interference from AT&T's WCS band operations to Sirius XM's satellite radio operations. AT&T and Sirius XM agree that with regard to each party's relationship with the other, the provisions hereof conflict with, and shall supersede, the requirements set forth in Section 27.72 of the Federal Communications Commission's ("FCC") Rules, except for the introductory language to Section 27.72, subsection (a) and the first sentence of subsection (e). All information exchanged hereunder will be subject to the non-disclosure agreement previously executed between AT&T and Sirius XM dated as of May 10, 2012.
2. AT&T's fixed and/or base stations operating as of the date hereof in compliance with the current FCC Part 27 rules for 2.3 GHz interference coordination are categorized as exempt from the procedures defined in this agreement. Any AT&T fixed and/or base station that is (a) located at distances of over three miles from any interstate, U.S., state highway, or similar road and (b) located in a county with a population density of not more than 100 persons per square mile also shall be exempt from these procedures.
3. AT&T and Sirius XM have jointly defined harmful interference in their letter to Marlene H. Dortch, FCC Secretary, dated on or around June 15, 2012 in WT Docket No. 07-293, IB Docket No. 95-91, and GEN Docket No. 90-357. They expect that definition will be incorporated into revised FCC Rules and this agreement provides further principles and timeframes for establishing a new site's potential for causing harmful interference. As early as practical during the network design process, AT&T will provide Sirius XM the results of an interference analysis indicating that a proposed site or sites will cause no potential harmful interference to Sirius XM. Sirius XM will review the results as promptly as practical, which it expects will be within 30 calendar days after receipt, will request additional data if required, and will work with AT&T to agree on the potential for harmful interference from the site or sites. If Sirius XM determines it needs site location data and parameters to complete an independent interference analysis, Sirius XM must request the data as promptly as practical, which it expects will be within 7 calendar days after receiving the interference analysis. If Sirius XM concludes from the data provided by AT&T that there is the potential for harmful interference, Sirius XM must notify AT&T as promptly as practical, which Sirius XM expects will be within 15 calendar days after receiving the complete interference analysis. AT&T and Sirius XM will work together for an additional 15 calendar days to resolve the potential interference. If no agreement can be reached, both parties agree to enter into arbitration, employing the procedures specified in Paragraph 4 below. In addition to the provisions above

concerning new sites, AT&T will make a good faith effort to provide timely notification to Sirius XM of any planned site modifications that have the potential to cause harmful interference.

4. In the event any dispute arises between AT&T and Sirius XM under this Agreement, including but not limited to any disagreement on whether there is interference or how to resolve any interference, arbitration shall be the parties' exclusive dispute resolution process. The arbitration proceedings and all information exchanged therein shall be confidential and shall not be disclosed by the parties or the arbitrator to any third party.
  - a. Either party may submit such a dispute to arbitration. The initiating party shall commence arbitration by delivering to the other party a written notice (i) describing the dispute, (ii) a statement of its position and supporting evidence, and (iii) the relief sought. The other party shall deliver to the initiating party a written reply containing a statement of its position with respect to the dispute and supporting evidence within five (5) business days of receiving notice of the initiation of the arbitration. There shall be no discovery, except as requested by the arbitrator under Subparagraph d.
  - b. The arbitration shall be conducted by a single arbitrator selected from a panel of neutral arbitrators, each of whom shall have technical backgrounds and experience in the wireless telecommunications industry, including but not limited to commercial mobile radio, satellite, or similar businesses that use the electromagnetic spectrum to provide service, appropriate to address and resolve disputes relating to interference and its resolution that might arise under this Agreement (such experience shall include appropriate engineering or scientific education). Within 120 days of the date of this Agreement, the parties shall, by mutual agreement, identify a panel of not fewer than five (5) such individuals who would be appropriate for this purpose.
  - c. For any particular dispute, each of the individuals on the panel shall be polled, on the business day after the initiating party delivers its written notice under Subparagraph a, as to his or her availability to hear the dispute with responses due within two (2) business days, and the responding individual with the earliest availability shall be chosen as the arbitrator unless the parties mutually agree to engage a different individual. When multiple individuals have the same earliest availability, the parties shall select the arbitrator from among them. If the parties cannot reach agreement on their selection within two (2) business days after receiving responses from the panel, they shall meet in Washington, D.C. on the

next business day to flip a coin to allocate the decision to the party that wins the coin toss.

- d. The parties shall provide the arbitrator a copy of the notice and reply within one (1) business day of the arbitrator's selection. The arbitrator may seek such additional information from the parties as the arbitrator reasonably deems necessary to resolve the dispute, provided such request is made within four (4) business days after the arbitrator is selected, and the parties must provide requested information within three (3) business days of the request. The arbitrator shall resolve the dispute, by adopting without modification the position of one of the parties, within six (6) business days of the parties' final submission. The decision shall be final and binding on the parties and may not be appealed to any court; however, if either party fails to comply with the arbitrator's final decision, the other party may seek the assistance of the FCC Wireless Telecommunications Bureau in enforcing the final decision. The aggregate fees and expenses of the arbitrator shall be shared evenly by the parties.
5. AT&T will notify Sirius XM at least 10 calendar days before operation commences from the site or sites included in Paragraph 3 of this document.
  6. Within 90 calendar days of the commencement of operations, Sirius XM may notify AT&T of any harmful interference. AT&T will have 15 calendar days to validate the harmful interference claim and notify Sirius XM of the proposed remedy. AT&T will implement the remedy in the shortest practical time, which it expects will be within 7 calendar days from receiving this notice. AT&T may temporarily reduce power on the offending site or sites while it seeks a longer term remedy. AT&T will have the sole responsibility to determine and implement the remedy; provided, however, that if AT&T determines that the remedy requires the construction of a new Sirius XM repeater, and Sirius XM agrees, the parties will work together to determine the necessary parameters of that repeater (which may be collocated at an existing AT&T site); provided, further, that if AT&T determines that the remedy requires the construction of a new Sirius XM repeater and Sirius XM disagrees, AT&T and Sirius XM will work together for an additional 15 calendar days to resolve the matter and if no agreement can be reached, the parties will enter into arbitration, employing the procedures specified in Paragraph 4 above. If a new Sirius XM repeater is to be constructed to remedy the interference, Sirius XM will supply the repeater equipment to be used and AT&T will be responsible for paying all other necessary construction, lease, and operational costs for the repeater.
  7. As an alternative to the above procedures, AT&T and Sirius XM may jointly agree to use a different notification and coordination process, which shall be implemented only following a further written agreement between AT&T and Sirius XM.

8. This agreement shall be valid for a period of 10 years from the date hereof and can be modified only by mutual consent of the parties. It is binding on the parties and their successors and assigns. AT&T and Sirius XM shall each maintain a copy this agreement in its files and disclose it to prospective assignees, transferees, or spectrum lessees and, upon request, to the FCC.
9. Any notice provided under this agreement shall be delivered by overnight delivery or e-mail to the following individuals at the addresses shown below.  
In the case of Sirius XM Radio, to:

Craig P Wadin  
Senior Vice-President, R.F. Systems  
Sirius XM Radio Inc.  
3161 SW 10th St  
Deerfield Beach Fl 33442

In the case of AT&T, to:

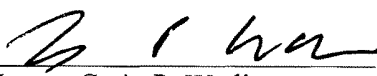
Kevin Hetrick  
Assistant Vice President – RAN Engineering  
AT&T, Inc.  
208 S. Akard St  
Dallas, TX 75202

AT&T SERVICES, INC.

SIRIUS XM RADIO INC.

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Name: Kristin Rinne  
Title: Senior Vice President – Network  
Technologies



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Name: Craig P. Wadin  
Title: Senior Vice-President, R.F.  
Systems

Date: June 15, 2012

8. This agreement shall be valid for a period of 10 years from the date hereof and can be modified only by mutual consent of the parties. It is binding on the parties and their successors and assigns. AT&T and Sirius XM shall each maintain a copy this agreement in its files and disclose it to prospective assignees, transferees, or spectrum lessees and, upon request, to the FCC.

9. Any notice provided under this agreement shall be delivered by overnight delivery or e-mail to the following individuals at the addresses shown below.

In the case of Sirius XM Radio, to:

Craig P Wadin  
Senior Vice-President, R.F. Systems  
Sirius XM Radio Inc.  
3161 SW 10th St  
Deerfield Beach Fl 33442

In the case of AT&T, to:

Kevin Hetrick  
Assistant Vice President – RAN Engineering  
AT&T, Inc.  
208 S. Akard St  
Dallas, TX 75202

AT&T SERVICES, INC.

SIRIUS XM RADIO INC.

/s/Kristin Rinne

Name: Kristin Rinne  
Title: Senior Vice President – Network  
Technologies

Name: Craig P. Wadin  
Title: Senior Vice-President, R.F.  
Systems

Date: June 15, 2012

## **Proposed Revisions to WCS Service Rules**

### **§ 27.50 Power limits and duty cycle.**

(a) The following power limits and related requirements apply to stations transmitting in the 2305–2320 MHz band or the 2345–2360 MHz band.

(1) Base and fixed stations. (i) For base and fixed stations transmitting in the 2305–2315 MHz band or the 2350–2360 MHz band:

(A) The average equivalent isotropically radiated power (EIRP) must not exceed 2,000 watts within any 5 megahertz of authorized bandwidth and must not exceed 400 watts within any 1 megahertz of authorized bandwidth.

(B) The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

(ii) For base and fixed stations transmitting in the 2315–2320 MHz band or the 2345–2350 MHz band, the peak EIRP must not exceed 2,000 watts.

~~(iii) Base stations supporting frequency division duplex (FDD) mobile and portable operations are restricted to transmitting in the 2345–2360 MHz bands.~~

(2) Fixed customer premises equipment stations. For fixed customer premises equipment (CPE) stations transmitting in the 2305–2320 MHz band or in the 2345–2360 MHz band, the peak EIRP must not exceed 20 watts within any 5 megahertz of authorized bandwidth. Fixed CPE stations transmitting in the 2305–2320 MHz band or in the 2345–2360 MHz band must employ automatic transmit power control when operating so the stations operate with the minimum power necessary for successful communications. The use of outdoor antennas for CPE stations or outdoor CPE station installations operating with 2 watts per 5 megahertz or less average EIRP is ~~prohibited~~ **using the stepped emissions mask prescribed in § 27.53(a)(3) of this chapter is prohibited, except if professionally installed in locations removed by 20 meters from roadways or in locations where it can be shown that the ground power level of -44 dBm in the A or B blocks or -55 dBm in the C or D blocks will not be exceeded at the nearest road location.** For WCS CPE using TDD technology, the duty cycle must not exceed 38 percent; ~~for WCS CPE using FDD technology, the duty cycle must not exceed 12.5 percent in the 2315–2320 MHz band, and must not exceed 25 percent in the 2305–2315 MHz band.~~

(3) Mobile and portable stations. (i) For mobile and portable stations transmitting in the 2305–~~2347.5~~**2315** MHz band or the 2347.5–~~2350~~**2350** MHz band, the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth and must not **exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for**

mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplex (TDD) technology, the duty cycle must not exceed 38 percent in the ~~2305–2317.5~~2315 MHz and ~~2347.5–2360~~ MHz bands. ~~For mobile and portable stations using frequency division duplex (FDD) technology, the duty cycle must not exceed 12.5 percent in the 2315–2317.5 MHz band and must not exceed 25 percent in the 2305–2315 MHz band~~2350–2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the ~~2305–2317.5~~2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

(ii) Mobile and portable stations are not permitted to operate in the ~~2317.5~~2315–2320 MHz and ~~2345–2347.5~~2350 MHz bands.

(iii) Automatic transmit power control. Mobile and portable stations transmitting in the ~~2305–2317.5~~2315 MHz band or in the ~~2347.5~~2350–2360 MHz band must employ automatic transmit power control when operating so the stations operate with the minimum power necessary for successful communications.

(iv) Prohibition on external vehicle-mounted antennas. The use of external vehicle-mounted antennas for mobile and portable stations transmitting in the ~~2305–2317.5~~2315 MHz band or the ~~2347.5~~2350–2360 MHz band is prohibited.

#### **§ 27.53 Emission limits.**

\* \* \*

(a) \* \* \*

(4) For mobile and portable stations operating in the ~~2305–2317.5~~2315 MHz and ~~2347.5~~2350–2360 MHz bands:

(i) By a factor of not less than:  $43 + 10 \log (P)$  dB on all frequencies between 2305 and ~~2317.5~~2315 MHz and on all frequencies between ~~2347.5~~2350 and 2360 MHz that are outside the licensed band of operation, not less than  $55 + 10 \log (P)$  dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than  $61 + 10 \log (P)$  dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, not less than  $67 + 10 \log (P)$  dB on all frequencies between 2328 and 2337 MHz.

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#### **§ 27.64 Protection from interference.**

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(d) Definition of Harmful Interference to SDARS Operations. The following conditions will be presumed to constitute harmful interference to SDARS operations:

(1) A WCS ground signal level greater than -44 dBm in the upper or lower A or B Block, or -55 dBm in the C or D Blocks, present at a location on a roadway where a test<sup>1</sup> demonstrates that SDARS service would be muted over a road distance of greater than 50 meters; or

(2) A WCS ground signal level exceeding -44 dBm in the upper or lower A or B Block, or -55 dBm in the C or D Block on a test drive route, which is mutually agreed upon by the WCS licensee and the SDARS licensee, for more than one percent of the cumulative surface road distance on that drive route, where a test<sup>2</sup> demonstrates that SDARS service would be muted over a cumulative road distance of greater than one half of one percent (incremental to any muting present prior to use of WCS frequencies in the area of that drive test).

#### **§ 27.72 Information sharing requirements.**

This section requires WCS licensees in the 2305–2320 MHz and 2345–2360 MHz bands to share information regarding the location and operation of base **and fixed** stations with Satellite Digital Audio Radio Service (SDARS) licensees in the 2320–2345 MHz band. Section 25.263 of this chapter requires SDARS licensees in the 2320–2345 MHz band to share information regarding the location and operation of terrestrial repeaters with WCS licensees in the 2305–2320 MHz and 2345–2360 MHz bands. WCS licensees are encouraged to develop separate coordination agreements with SDARS licensees to facilitate efficient deployment of and coexistence between each service. To the extent the provisions of any such coordination agreement conflict with the requirements set forth herein, the procedures established under a coordination agreement will control. WCS licensees must maintain a copy of any coordination agreement with an SDARS licensee in their station files and disclose it to prospective assignees, transferees, or spectrum lessees and, upon request, to the Commission.

\* \* \*

(e) *Duty to cooperate.* WCS licensees must cooperate in good faith in the selection and use of new station sites and new frequencies to reduce interference and make the most effective use of the authorized facilities. WCS licensees should provide SDARS licensees as much lead time as practicable to provide ample time to conduct analyses and opportunity for

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<sup>1</sup> [AT&T and Sirius XM have agreed to immediately start work on developing an appropriate, mutually-acceptable test protocol.]

<sup>2</sup> [AT&T and Sirius XM have agreed to immediately start work on developing an appropriate, mutually-acceptable test protocol.]

prudent base station site selection prior to WCS licensees entering into real estate and tower leasing or purchasing agreements. WCS licensees must have sufficient operational flexibility in their network design to implement one or more technical solutions to remedy harmful interference. Licensees of stations suffering or causing harmful interference, **as defined in § 27.64(d) of these rules**, must cooperate in good faith and resolve such problems by mutually satisfactory arrangements. If the licensees are unable to do so, the Wireless Telecommunications Bureau, in consultation with the Office of Engineering and Technology and the International Bureau, will consider the actions taken by the parties to mitigate the risk of and remedy any alleged interference. In determining the appropriate action, the Bureau will take into account the nature and extent of the interference and act promptly to remedy the interference. The Bureau may impose restrictions on WCS licensees, including specifying the transmitter power, antenna height, or other technical or operational measures to remedy the interference, and will take into account previous measures by the licensees to mitigate the risk of interference.